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Database on feeding value of fodder trees

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Introduction The reform of the EU's Common Agricultural Policy (CAP), has created renewed interest in agroforestry and silvopastoral systems. The multifunctional use of trees for energy and wood production, nutrient cycling, carbon storage, biodiversity and -last but not least- fodder, makes trees an interesting candidate to grow as a third crop on dairy farms, next to grass and maize.

Objective To study the feeding values (digestibility, protein and mineral content) of leaves and twigs of common temperate tree species.

Materials and methods On basis of a literature review an online database was created with feeding values of trees.

Goats as intermediate feeders particularly like browse material

Results

- The online database* shows that there are ample data available on feeding values of temperate fodder trees.
- In-vitro digestibility of tree leaves is generally low.
- Some tree species have high crude protein levels *(Robinia pseudoacacia, Tilia cordata)*.
- The levels of mineral and trace elements (e.g. Ca, Cu and Se) in a number of tree leaves are high, but levels differ per species.

Conclusions

- Various tree species are very interesting in terms of feeding value for livestock, serving as an alternative source of proteins, minerals and trace elements.
- Records in the database show remarkable differences in feeding values for the same tree species, probably due to seasonal differences, local soil conditions and the ability of tree species to adapt to local conditions.

Printscreen of the database filltered for Hazel *(Corylus avellana)*

Nutritional values fodder trees

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Fodder trees analysis results
note: of some trees/shrubs, several analysis values are known. For completeness, all are mentioned

Choose one of the following selection criteria

Group/Genus:	Hazel
Species:	----
Species (Latin):	----
Sorted on analysis value: (Descending)	----

				General analysis					Specific analysis Show	Macro-elements [g/kg ds] Hide						Micro-elements [mg/kg ds] Hide							Remaining info Show	
Group	Species	Tree part	Moment of sampling	DM Dry Matter [%]	Crude Ash [%DM]	Crude protein [%DM]	Crude Fat [%DM]	Crude Fibre [%DM]		Ca	P	N	Mg	Na	S	K	Fe	Mn	Cu	Zn	Co	Se	Cd	Mo	B
Hazel	Common hazel *Corylus avellana*	bud	march	29.9						12.3	3.9	27.7	2.4	1.4	2.8	11.3	157	26.0	32.5	60.0	0.50	0.20		0.4	24
"	"	"	march	70.0						13.5	2.9	23.1	2.2	1.4	2.3	7.8	129	166.0	36.9	72.0	0.50	1.50		0.7	26
Average analysis results bud Common hazel (*Corylus avellana*)				**50.0**						**12.9**	**3.4**	**25.4**	**2.3**	**1.4**	**2.6**	**9.6**	**143**	**96.0**	**34.7**	**66.0**	**0.50**	**0.85**		**0.6**	**25**
Hazel	Common hazel *Corylus avellana*	leaf	may																						
"	"	"	october																						
"	"	"			8.1	14.5	4.3	16.3																	
"	"	"	autumn		6.5	14.6	1.5	22.5																	
"	"	"	june		6.6	20.4	1.5	16.4																	
"	"	"	july	34.0	6.7	14.7	2.9	15.5		19.5			2.5	0.6		22.2	162	541.0	18.0	31.0	0.72	0.04			
"	"	"	june	52.0	6.7	17.0		12.5		17.1	2.4		3.2	0.3	1.8	9.4	94	42.0	8.5	29.0	0.40	0.16		0.6	
"	"	"	june	29.0	5.5	17.6		15.1		11.2	2.6		3.3	0.1	2.1	10.7	133	893.0	8.6	41.0	0.11	0.03		0.2	
"	"	"	october	34.0	8.2	14.1		17.3		11.1	3.3		2.2	0.2	1.8	27.3	126	134.0	17.2	36.0	0.21	0.03		0.6	
Average analysis results leaf Common hazel (*Corylus avellana*)				**37.3**	**6.9**	**16.1**	**2.6**	**16.5**		**14.7**	**2.8**		**2.8**	**0.3**	**1.9**	**17.4**	**129**	**402.5**	**13.1**	**34.3**	**0.36**	**0.07**		**0.5**	
Group	**Species**	**Tree part**	**Moment of sampling**	**DM**	**Crude Ash**	**Crude protein**	**Crude Fat**	**Crude Fibre**		**Ca**	**P**	**N**	**Mg**	**Na**	**S**	**K**	**Fe**	**Mn**	**Cu**	**Zn**	**Co**	**Se**	**Cd**	**Mo**	**B**
Hazel	Common hazel *Corylus avellana*	leaf and twig	july																						
"	"	"	september		6.5	11.3	3.9	25.1																	
Average analysis results leaf and twig Common hazel (*Corylus avellana*)					**6.5**	**11.3**	**3.9**	**25.1**																	
Hazel	Common hazel *Corylus avellana*	twig	may																						
"	"	"	october																						
"	"	"			4.0	5.7	3.1	40.1																	
"	"	"	march	45.7						13.3	1.8	9.7	1.1	1.0	2.4	6.0	171	25.0	9.8	35.0	0.50	0.20		0.4	17
"	"	"	march	62.9						10.7	1.7	12.2	1.0	0.4	1.2	4.8	84	59.0	11.7	67.0	0.50	0.90		0.3	15
Average analysis results twig Common hazel (*Corylus avellana*)				**54.3**	**4.0**	**5.7**	**3.1**	**40.1**		**12.0**	**1.8**	**11.0**	**1.1**	**0.7**	**1.8**	**5.4**	**128**	**42.0**	**10.8**	**51.0**	**0.50**	**0.55**		**0.4**	**16**

Praktijknetwerk Voederbomen

*www.voederbomen.nl/nutritionalvalues/